THE CANALS OF CANADA

Under the Jurisdiction of

The Department of Railways and Canals

1934

Published by Authority of the Hon. R. J. Manion, M.P., Minister of Railways and Canals

OTTAWA
J. O. PATENAUDE
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1934

THE CANALS OF CANADA

Under the Jurisdiction of

The Department of Railways and Canals

1934

Published by Authority of the Hon. R. J. Manion, M.P., Minister of Railways and Canals

OTTAWA
J. O. PATENAUDE
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1934

CONTENTS

NOTE

Questions of vessel clearance may be assisted towards solution by reference to the lock diagrams at the end of this pamphlet. These diagrams show the minimum size lock on each system of canals with its inside clear length and width. The minimum navigable widths and depths available in the various canal reaches may be ascertained by reference to the text in the body of the pamphlet.

CANALS AND NAVIGATION ROUTES

The following statements give, in concise form, the essential features of the Government canal works* and the intermediate water navigation.

The canal systems of the Dominion under Government control in connection with lakes and navigable rivers, are as follows:—

First.—Through route between Montreal and Port Arthur or Fort William on the west shore of lake Superior (depth of water, normally 14 feet)

	Statute Miles
1. Lachine canal	8·74
Lake St. Louis and river St. Lawrence	16·00
2. Soulanges canal	14·67
Lake St. Francis and river St. Lawrence	31·00
3. Cornwall canal	11·00
River St. Lawrence	4·70
4. Farran's Point canal	1·28
River St. Lawrence	9·50
5. Rapide Plat canal	3·89
River St. Lawrence	4·00
6. Galops canal	7·36
River St. Lawrence and lake Ontario	229·00
7. Welland ship canal	27·60
Lake Erie Detroit river, lake St. Clair, St. Clair river, lake Huron, etc	575·00
8. Sault Ste. Marie canal	1·38
Lake Superior to Port Arthur or to Fort William	270·00
Total	1,215·12

For intermediate distances along the above route reference may be had to the tabular statement on page .....

NOTE.—The Murray canal, a level waterway, without locks, 5·15 miles long, connecting the bay of Quinte with lake Ontario, is used only by the coasting vessels on lake Ontario and is not part of the through route.

In connection with the above, the following distances may also be noted:—

Montreal to Duluth	1,337 statute miles
Montreal to Chicago	1,244 statute miles
Montreal to Liverpool *via* Belle Isle strait	2,760 nautical miles
Montreal to Liverpool south of Newfoundland	2,966 nautical miles
New York City to Liverpool	3,074 nautical miles

Second.—Montreal to International Boundary, near Lake Champlain (depth of water, normally 6½ feet)

	Statute Miles
1. St. Lawrence river to Sorel	46·00
2. Sorel, *via* Richelieu river, to St. Ours lock	14·00
3. St. Ours lock	0·12
4. Richelieu river, St. Ours lock to Chambly canal	32·00
5. Chambly canal	11·78
6. Chambly canal to boundary line	23·00
Total	126·90

* St. Andrews lock, which consists of a lock and dam on the Red river, about fifteen miles north of Winnipeg, and the Burlington canal, an open cut giving access to Hamilton Harbour at the westerly end of Lake Ontario, are under the control of the Department of Public Works.

85197—2½

Third.—Montreal to Ottawa (depth of water, normally 9 feet)

	Statute Miles
1. Lachine canal	8·74
Lake St. Louis	13·50
2. Ste. Anne lock	0·12
Lake of Two Mountains and Ottawa river	27·00
3. Carillon canal	0·94
Ottawa river	6·25
4. Grenville canal	5·94
Ottawa river to Ottawa	56·00
Total	118·49

Fourth.—Ottawa to Kingston or Perth (depth of water, normally 5 feet)

	Statute Miles
Rideau canal, Ottawa to Kingston	126·25
Tay Branch—Rideau lake to Perth	7·25
Total	133·50

*Fifth.—Trenton on lake Ontario to Port Severn on Georgian bay (minimum depth of water Trenton to lock 19 Peterborough, 8 feet 4 inches; lock 19 Peterborough to Swift Rapids, 6 feet, Swift Rapids to Georgian bay, 4 feet)**

	Statute Miles
Trent Canal—	
Trenton on lake Ontario to Couchiching lock near Washago	209·89
Couchiching lock to Port Severn lock on Georgian bay *via* Severn river, marine railways and Port Severn lock	30·66
Branches—	
Sturgeon lake to Port Perry	35·00
Buckhorn lake to Bridgenorth	9·00
Pigeon lake to Omemee	14·00
Total	298·55

Sixth.—Atlantic Ocean to Bras d'Or Lakes, Cape Breton (minimum depth of water, 17 feet)

	Statute Miles
St. Peters canal	0·50

* Except as noted in footnote, page 27.

RIVER ST. LAWRENCE AND GREAT LAKES ROUTE

The river St. Lawrence, with the system of canals established on its course above Montreal, and lakes Ontario, Erie, St. Clair, Huron, and Superior, with connecting rivers and canals, afford a course of water communication extending from the strait of Belle Isle to Port Arthur or Fort William on the west coast of lake Superior, a distance of 2,218 statute miles. The distance to Duluth is 2,340 miles; the distance to Chicago 2,247 miles. From the strait of Belle Isle, at the mouth of the St. Lawrence, to Montreal, the distance is 1,003 statute miles. From Quebec to Montreal the distance is 160 miles.

The control of the St. Lawrence ship channel from the seaboard to Montreal and the making of improvements thereto are under the Department of Marine whose annual reports give full information as to the history and improvement of the channel. The dredging of the channel between Montreal and Father Point to 35 feet is now almost completed. There are three short stretches west of Quebec with a minimum depth of 30 feet, the deepening of which is in progress.

All improvements of Canadian channels from Montreal to the head of lake Superior are under the jurisdiction of the Department of Public Works.

By means of channel improvements, Montreal has been placed at the head of ocean navigation, and here the canal systems of the river St. Lawrence begin, overcoming the several rapids by which the river channel upwards is obstructed, and giving access through the St. Lawrence canals, the Welland ship canal, the Great Lakes and the Sault Ste. Marie canal to the head of lake Superior.

The difference in level between the point on the St. Lawrence, near Three Rivers, where tidal influence ceases, and lake Superior, is about 600 feet.

The Dominion canals, constructed on the through route between Montreal and lake Superior, are the Lachine, Soulanges, Cornwall, Farran's Point, Rapide Plat, Galops, Welland Ship and Sault Ste. Marie. Their aggregate length is 75·92 miles; total lockage (or height directly overcome by locks), 554 feet. The number of locks which a vessel would encounter in its passage from Montreal, at the head of ocean navigation, to the head of lake Superior, is thirty.

The canals on the St. Lawrence river, as at present constructed, control the size of vessel that can traverse the through route, and the limiting lock in this respect is lock No. 17 situated at Cornwall on the Cornwall canal. This lock has the following dimensions: length between hollow quoins of gates 270 feet; width at bottom 43 feet 8 inches; width at coping 45 feet 3 inches; depth of water over mitre sills 14 feet. It will accommodate vessels having the ordinary perpendicular and pointed bow and rounded stern up to an overall length of 255 feet.

The upper entrance to the Galops canal, the last of the St. Lawrence canals, is 112 miles above Montreal and 4½ miles above this point the Lower Lakes Terminals, generally referred to as the Prescott Terminals, are situated. These terminals, completed in 1930, are under the control of the Department of Railways and Canals and consist mainly of a reinforced concrete elevator of 5,500,000 bushels capacity equipped with the necessary facilities for the unloading and the storing of grain received from upper lake freighters and the forwarding of such grain either by St. Lawrence canal-sized vessels or by rail as required. The wharves at the terminals will accommodate vessels drawing up to 24 feet.

Between the Prescott terminals and Kingston, at the foot of lake Ontario, a distance of 66 miles, the navigation channel for the through route is partly on the Canadian side of the International Boundary and partly on the United States side. The Canadian channel provides a navigable depth of 27 feet below

lake Ontario elevation 244·5 and improvements to the United States channel to provide the same depth are about completed at the present time, October, 1934.

From Kingston to Port Weller at the lake Ontario entrance to the Welland Ship Canal, the distance is 160 miles. The Welland Ship Canal connects lake Ontario with lake Erie at Port Colborne and is 27·6 miles long. The canal was completed for 25-foot navigation in 1932, but all permanent structures have been constructed for an ultimate depth of 30 feet. At Port Colborne the Department of Railways and Canals owns and operates a reinforced concrete grain elevator of 3,000,000 bushels capacity. Normally a depth of 20 feet is available at the elevator wharves.

Access from lake Erie to lake Huron is obtained by way of the Detroit river, lake St. Clair and St. Clair river and from lake Huron to lake Superior by way of the St. Mary river and the Sault Ste. Marie canal on the Canadian side or the St. Mary's Falls canal on the United States side. Improvements in the navigation channels between lakes Erie and Superior, largely completed by the United States, now provide a minimum depth of 20 feet if the third or fourth lock of the St. Mary's Falls canal on the United States side is used. The Sault Ste. Marie canal and its approaches on the Canadian side provide however a minimum depth normally of only 18 feet 3 inches. The deepening of channels between lake Erie and lake Huron to 25 feet, by the United States Government, is now in progress.

The provision and maintenance of aids to navigation on all Canadian river and lake channels is controlled by the Department of Marine.

The Sault Ste. Marie, Welland Ship, Cornwall, Soulanges and Lachine canals are well lighted throughout by electricity, and are electrically operated.

The Farran's Point and Rapide Plat canals and the terminal sections of the Galops canal are electrically lighted, but none of these canals is electrically operated.

Navigation, which is closed by ice during the winter months, opens about the end of April on the Great Lakes and St. Lawrence route. Ice-breaking steamers are now employed to lengthen the navigable season at Lake Superior and Georgian Bay terminals and also on the St. Lawrence river between Quebec and Montreal.

STATEMENT OF PRESENT MINIMUM DEPTH OF IMPROVED CHANNELS

Father Point to Montreal	30 feet
Montreal to Kingston	14 feet
Kingston to Fort William *via* St. Mary's Falls canals	20 feet
Kingston to Fort William *via* Sault Ste. Marie canal	18 feet 3 inches.*

*See also page 17.

LACHINE CANAL

1700-1733—Partial canal, known as the Casson canal, built under the French régime about half way between Montreal and Lachine—1 mile long 2 feet 6 inches depth of water.

1821-1824—First full-length canal between Montreal and Lachine—5 feet depth of water.

1843-1848—First enlargement—16 feet depth at two lower locks and 9 feet throughout remainder of canal.

1873-1884—Second enlargement (present canal)—Provides dimensions and depths as follows:—

Length of canal	8·74 statute miles
Number of locks—	
Lift	4
Guard	1
Dimensions of locks	270 feet by 45 feet
Total rise or lockage	46·24 feet
Depth of water on sills:—	
South Lock No. 1	
Normal	17 feet 6 inches
Extreme low water	13 feet 3 inches
South Lock No. 2	17 feet
North Locks Nos. 3 and 4	14 feet
South Lock No. 5 (normally)	14 feet
Minimum width of canal at water surface	150 feet
Minimum width of canal at bottom	140 feet
Minimum overhead clearance	150 feet (Transmission line)

The canal consists of one channel with two distinct systems of locks, the old and the new or enlarged. Old locks Nos. 1, 2 and 5 are situated on the north side, old locks Nos. 3 and 4 are on the south side.

The old locks are still available for navigation. Nos. 1 and 2 are 270 feet by 45 feet and under ordinary water conditions both have 15 feet 6 inches of water on mitre sills. At extreme low water in Montreal harbour however, old lock No. 1 has only 11 feet 3 inches. Old locks 3, 4 and 5 are 200 feet by 45 feet with only 9 feet of water on sills.

The canal extends from the harbour of Montreal to lake St. Louis at the city of Lachine overcoming the Lachine rapids, the first obstruction to bar the ascent of the St. Lawrence river.

All locks (except old lock 5) and all bridges along the canal are electrically operated. The canal is electrically lighted.

From the head of the Lachine canal to the foot of the Soulanges the distance is 16 miles and to the foot of the Ste. Anne Lock 13½ miles with a normal controlling navigation depth in the latter case of 9 feet.

Lachine Canal—Mileage and General Data

Mileage	Structure, Locality, etc.	Locks								Lift
		No.	Length between hollow quoins		Minimum Width		Depth on sill			
	(Montreal Harbour—Standard low level, 18·99 above M.S.L.)									
			ft.	in.	ft.	in.	ft.	in.		ft.
0·00	Montreal Harbour—Mouth of Entrance channel									
0·04	South lock	1	270	0	45	0	17	6*		12·96
0·10	Basin No. 1									
0·21	South lock	2	270	0	45	0	17	0		13·50
0·28	Bridge 1—Prince street—"Black's Bridge"—Swing									
0·47	Basin No. 2									
0·64	Bridge—Can. National Rys.—Swing									
0·67	Tunnel—Wellington street									
0·70	Bridge 2—Wellington street—Swing									
0·76	Tunnel for water pipes—M.W.W.									
1·16	North lock—"St. Gabriel"	3	270	0	45	0	14	0		9·02
1·23	Bridge 3—Seigneurs street—Swing									
1·70	" 4—Charlevois street—Swing									
1·85	" 5—Atwater avenue—Swing									
2·07	" Can. Nat. Rys.—Swing									
2·39	Siphon culvert—St. Pierre river									
2·99	North lock—"Côte St. Paul"	4	270	0	45	0	14	0		9·26
3·27	Bridge 6—Côte St. Paul road—Swing									
3·45	Siphon culvert									
6·27	Bridge 7—Rockfield—Highway bascule									
6·85	" Can. Pacific Ry.—Rockfield									
7·50	South lock—Lachine	5	270	0	45	0	14	0†		1·50
7·56	Bridge 8—Lower Lachine road—Swing									
8·74	Lake St. Louis—Mouth of entrance channel									
	Total lift									46·24

* The depth on lower sill of lock No. 1 varies with the level of Montreal harbour. Highest record, 45·25 feet, April 18 1886; lowest, 13·25 feet, November 13, 1933.
† The depth on upper sill of lock No. 5 varies with the level of Lake St. Louis. Highest record, 21·67 feet, May 10, 1908; lowest, 12·00 feet, March 5, 1895.

SOULANGES CANAL

1777-1816—Four short canals at Les Cascades, Coteau du Lac, Mill rapids and Split rock—locks 6 feet wide with 2½ feet depth on sills.

1892-1899—Canal constructed on north side of river in replacement of 9 feet Beauharnois canal on south side constructed in 1842-1845.

Length of canal	14·67	statute miles
Number of locks—		
Lift	4	
Guard	1	
Dimensions of locks	280	feet by 46 feet
Total rise of lockage	83·50	feet
Depth of water on sills (normally)	15	"
Breadth of canal at bottom	96	"
Breadth of canal at water surface	160	"
Minimum overhead clearance	135	" (Transmission Lines)

The canal extends from Cascades Point to Coteau Landing, overcoming the Cascades rapids, Cedar rapids and Coteau rapids.

The locks on this canal are electrically operated and the canal lighted by electricity.

From the head of the Soulanges canal to the foot of the Cornwall canal there is a stretch through lake St. Francis of 31 miles, which is navigable for vessels drawing 14 feet.

Soulanges Canal—Mileage and General Data

Mileage	Structure, Locality, etc.	Locks								Lift
		No.	Length between hollow quoins		Minimum Width		Depth on sill			
			ft.	in.	ft.	in.	ft.	in.		ft.
0·00	Lake St. Louis—Mouth of entrance channel									
0·25	Cascades Point locks	1	280	0	46	0	15	0*		23·50
0·52	" "	2	280	0	46	0	15	0		23·50
0·89	" "	3	280	0	46	0	15	0		23·50
0·95	Bridge 1—Quinze Chiens road—Swing									
1·92	Culvert—Bissonette Gully									
2·86	Bridge 2—St. Antoine road—Swing									
3·38	Lock	4	280	0	46	0	15	0		12·00
3·57	Guard gates									
3·97	Head-race to power house of M.L.H. & P. Cons.									
5·60	Culvert—Valade Gulley									
5·70	Bridge 3—St. Féréol road—Swing									
8·00	Bridge 4—St. Dominique road—Swing									
8·93	Culvert—Rivière à la Graisse									
9·04	Power house									
9·94	Bridge 5—St. Emmanuel road—Swing									
11·25	Culvert—Rivière Rouge									
11·51	Bridge 6—Rivière Rouge road—Swing									
11·96	Siphon culvert—Rivière Delisle									
14·01	Bridge—Canadian National Rys.—Swing									
14·03	Guard lock	5	280	0	46	0	15	0†		1·00
14·10	Bridge 7—Coteau Landing highway—Swing									
14·67	Lake St. Francis—Mouth of entrance channel									
	Total lift									83·50

* The depth on lower sill of lock No. 1 varies with the level of Lake St. Louis. Highest record, 33·5 feet, Feb. 6, 1918 lowest, 14·6 feet, Nov. 10, 1933.

† The depth on upper sill of lock No. 5 varies with the level of Lake St. Francis. Highest record, 19·0 feet, April 13, 1908; lowest, 15·2 feet, Nov. 19, 1915.

CORNWALL CANAL

1834-1842—First canal built to provide 9 feet depth.

1876-1904—Canal enlarged to 14 feet depth.

Length of canal	11·00	statute miles
Number of locks—		
Lift	5	
Guard	1	
Guard gates	1	
*Dimensions of locks	270	feet by 45 feet*
Total rise of lockage	48	feet
Depth of water on sills (normally)	14	"
Breadth of canal at bottom	90	"
Breadth of canal at water surface	154	"
Minimum overhead clearance	150	" (Transmission line)

The Cornwall canal extends past the Long Sault rapids from the town of Cornwall to Dickinson's Landing.

The locks on this canal are electrically operated and the canal lighted by electricity.

From the head of the Cornwall canal to the foot of the Farran's Point canal the distance on the river St. Lawrence is $4\frac{3}{4}$ miles.

* Lock No. 17 is only 43 ft. 8 in. wide at the bottom and 45 ft. 3 in. wide at the coping. See lock diagram at end of this pamphlet, also remarks on page 7.

Cornwall Canal—Mileage and General Data

Mileage	Structure, Locality, etc.	Locks							
		No.	Length between hollow quoins		Minimum Width		Depth on sill		Lift
			ft.	in.	ft.	in.	ft.	in.	ft.
0·00	East entrance—Cornwall								
0·01	Cornwall lock	15	270	0	45	0	14	0*	12·7
0·25	By-pass								
0·32	Lock	17	270	0	43	8	14	0	13·3
0·82	Bridge 1—Highway swing								
1·55	Culvert								
1·65	Lock	18	270	0	45	0	14	0	8·0
1·84	Bridge 2—N.Y.C. & H.R.R.R. and highway swing								
3·16	Lock	19	270	0	45	0	14	0	6·0
4·06	Culvert								
4·76	Lock	20	270	0	45	0	14	0	8·0
5·04	Guard gate								
5·99	Bridge 3—Highway swing								
10·38	Guard lock	21	270	0	45	0	14	0*	0·00
11·00	West entrance—Dickinson's Landing								
	Total lift								48·0

* Minimum depth.

WILLIAMSBURG CANALS

The Farran's Point, Rapide Plat and Galops canals are collectively known as the Williamsburg canals.

FARRAN'S POINT CANAL

1844-1847—First canal built to provide a 9-foot depth.
1897-1901—Canal enlarged 14 feet depth.

Length of canal	1·28 statute mile
Number of locks	1
New lock	800 feet by 50 feet
Total rise of lockage	4 feet 2½ inches
Depth of water on sills (normally)	16 "
Breadth of canal at bottom	80 "
Breadth of canal at water surface	154 "
Minimum overhead clearance	No restrictions

This canal enables vessels ascending the river to avoid Farran's Point rapids, passing a full tow at one lockage. Descending vessels run the rapids with ease and safety.

The canal is lighted by electricity.

From the head of Farran's Point canal to the foot of Rapide Plat canal there is a navigable stretch of 9½ miles.

RAPIDE PLAT CANAL

1844-1847—First canal built to provide 9 feet depth.
1884-1904—Canal enlarged to 14 feet depth.

Length of canal	3·89 statute miles
Number of locks	2
Dimensions of locks—	
Lock No. 23	285 feet by 45 feet
Guard Lock No. 24	270 " "
Total rise or lockage	11 feet 7¼ inches
Depth of water on sills (normally)	14 "
Breadth of canal at bottom	80 "
Breadth of canal at water surface	154 "
Minimum overhead clearance	No restrictions

The canal was constructed to enable vessels ascending the river to pass the Rapide Plat. Descending vessels run the rapids safely, except at extreme low stage of water in the river, when down-bound vessels of full canal draft must use the canal.

The canal is lighted by electricity.

From the head of the Rapide Plat canal to Iroquois, at the foot of the Galops canal, the St. Lawrence is navigable for 4 miles.

GALOPS CANAL

1844-1846—First canal built to provide 9 feet depth.
1888-1904—Canal enlarged to 14 feet depth.

Length of canal	7·36 statute miles
Number of locks	3
Dimensions of locks—	
Lift-lock at foot of canal	800 feet by 50 feet
Guard-lock at head of canal	270 feet by 45 feet
Lift-lock to pass vessels around Galops rapids only	303 feet by 45 feet
Total rise or lockage	15 feet 5½ inches
Depth of water on sills (normally)	14 "
Breadth of canal at bottom	80 "
Breadth of canal at surface of water	144 "
Breadth between walls in Cardinal cut	88 "
Minimum overhead clearance	No restrictions

This canal enables vessels to overcome the rapids at Pointe aux Iroquois, Point Cardinal and the Galops.

Both entrance locks and the canal, for a distance of 1·7 mile from lower entrance, are lighted by electricity.

From the head of the Galops canal to the entrance to the Welland Ship canal the distance is 229 miles.

Williamsburg Canals—Mileage and General Data

Mileage	Structure, Locality, etc.	Locks				
		No.	Length between hollow quoins	Minimum Width	Depth on sill	Lift
			ft. in.	ft. in.	ft. in.	ft.
	Farran's Point Canal					
0·00	East entrance—Farran's Point Village					
0·11	Farran's Point lock	22	800 0	50 0	16 0 (lower sill)	4·21
1·28	West entrance					
	Total lift					4·21
	Rapide Plat Canal					
0·00	East entrance—Farlingers Bay, Morrisburg				*	
0·19	Morrisburg Lock	23	285 0	45 0	14 6 (lower sill)	11·60
1·59	Stata's bay					
1·76	Mariatown					
2·80	Heagles bay				†	
3·67	Guard lock	24	270 0	45 0	14 0	
3·89	West entrance—Flagg's bay					
	Total lift					11·60
	Galops Canal					
0·00	East entrance—Iroquois Village				*	
0·21	Iroquois lock	25	800 0	50 0	16 6 (lower sill)	15·46
0·34	Bridge 4—Highway swing					
5·25	Bridge 5—Canadian National Rys.—Swing					
5·83	Gates' bay					
6·42	Guard lock	27	270 0	45 0	‡14 0	
6·42	River lock	28	303 0	45 0	§14 0	(6·0)
7·36	West entrance					
	Total lift					15·46

* Minimum depth.
† Has been as low as 12 ft. 9 in. (Nov. 1933).
‡ Has been as low as 13 ft. 1 in. (Nov. 1925).
§ Has been as low as 12 ft. 6 in. (Nov. 1933).

WELLAND SHIP CANAL

(From Port Weller, lake Ontario, to Port Colborne, lake Erie)

1824-1829—First canal built by private company to provide 8 feet depth.
1842-1845—Canal enlarged by government to 9 feet depth.
1873-1887—Canal enlarged to 12 feet depth by 1883 and 14 feet depth by 1887.
1913-1932—Canal enlarged to 25 feet depth in canal reaches and route partially changed.

Length of canal	27·60	statute miles
Number of locks—		
Guard	1	
Lift	7	
Dimensions—		
Lock 1 (Port Weller)	865 feet by	80 feet
Locks 2, 3, 4, 5, 6 and 7	859 feet by	80 feet
Lock 8 (Guard Lock, Port Colborne)	1,380 feet by	80 feet
Guard Gates (Thorold)	1	
Total rise or lockage	327	feet
Depth of water on lock sills	30	feet
Depth of canal prism	25	feet
Breadth of canal prism at bottom	200	feet
Breadth of canal prism at surface of water	310	feet
Minimum overhead clearance	120	feet (Lift Bridges)

The Welland Ship canal, which crosses the Niagara peninsula, overcomes the difference in level between lakes Ontario and Erie caused by the Niagara falls. It supersedes the former Welland canal.

The construction of the new ship canal, commenced in 1913, was fully completed for 25 foot navigation by the close of the 1932 season. As all the lock structures provide a depth of 30 feet on sills, a further deepening of the reaches, can, when required, provide for 30 foot navigation through the entire canal.

Leaving lake Ontario at Port Weller (about 3 miles east of Port Dalhousie) it follows an entirely different route to the former Welland canal as far as Thorold. From this point to the lake Erie entrance at Port Colborne the new route adheres in general to that of the old canal, certain short diversions therefrom having been made to secure better alignment.

The canal is lighted by electricity throughout and electrically operated.

From the lake Erie entrance of the Welland Ship canal to the foot of the Sault Ste. Marie canal the distance is 575 miles.

Welland Ship Canal—Mileage and General Data

Mileage	Structure, Locality, etc.	Locks				
		No.	Length between hollow quoins	Minimum Width	Depth on sill	Lift
	(Lake Ontario—Standard low water, 243·0 above M.S.L.)					
			feet	feet	feet	feet
0·00	Lake Ontario entrance—Port Weller					
*1·90	Port Weller lock	1	865	80	30·0 (minimum)	46·0 (maximum)
2·01	Bridge 1—Lake Shore road—Single bascule					
2·08	Entrance to Gate Dock					
3·70	Lock	2	859	80	30·0	46·5
3·80	Bridge 3—Carleton street—Single bascule					
5·62	Bridge 4—Queenston road—Double bascule					
6·35	Lock	3	859	80	30·0	46·5
7·05	Bridge 5—Merritton—Vertical lift					
7·20	Hydro-Electric Power Line					
7·58	Bridge 6—Canadian National Rys.—Two bascules					
7·66	Twin locks	4 (Flight)	859	80	30·0	47·9
7·83	"	5 (Flight)	859	80	30·0	47·9
8·00	"	6 (Flight)	859	80	32·8	43·7
8·60	Thorold lock	7	859	80	30·0	46·5
8·71	Bridge 7—Peter street—Thorold—Single bascule					
8·96	Bridge 8—N. St. C. & T. Ry.—Swing					
9·30	Centre of Turning Basin					
9·45	Shriner's culvert					
9·55	Guard gate and safety weir					
9·55	Bridge 9—Thorold-Allanburg road—Single bascule					
10·17	Beaver Dams culvert					
10·45	Bridge 10—Canadian National Rys.—Vertical lift					
10·55	Hydro-Electric power line					
11·33	Davis culvert					
11·94	Bridge 11—Canbor'gh road, Allanburg—Vertical lift					
12·11	Hydro-Electric power line					
13·00	Hydro-Electric power line					
14·52	Bridge 12—Port Robinson—Vertical lift					
15·10	Centre of Turning Basin					
18·30	Welland River Siphon—Welland					
18·52	Bridge 13—Main street—Vertical lift					
19·07	Hydro-Electric power line					
19·09	Bridge 14—Water street—Vertical lift					
19·36	Hydro-Electric power line					
19·56	Bridge 15—Michigan Central Railway—Swing					
19·79	Bridge 16—Ontario road—Vertical lift					
20·15	Hydro-Electric power line					
21·50	Bridge 17—Canadian National Rys.—Vertical lift					
21·65	Bridge 18—Forks road—Vertical lift					
24·50	Tailrace from supply weir					
24·85	Bridge 19—Single bascule					
25·02	Guard lock (Humberstone)	8	1,380	80	30·0	2·0 (to 11·0)
25·85	Bridge 20—Canadian National Rys.—Vertical lift					
25·91	Bridge 21—Port Colborne—Vertical lift					
27·60	Lake Erie entrance—Port Colborne					
	(Lake Erie—Standard low water, 570·0 above M.S.L.)					
	Total lift					327·0

* In all cases centre of lock.

NOTE.—All bridges not otherwise designated are highway bridges.

SAULT STE. MARIE CANAL

1797-1798—First canal with one small wooden lock constructed by Northwest Fur Company. Lock—38 feet by 9 feet with 1 foot 6-inch depth on sill.

1887-1895—Present canal constructed for 18·25 feet depth.

Length of canal, between the extreme ends of the entrance piers	1·38 statute mile or 7,295 feet
Number of locks	1
Dimensions of lock	900 feet by 60 feet at low water level; width at lock bottom, 59 feet
Depth of water in lock—	
Ordinary water level	18 feet 3 inches*
Lowest recorded water level	15 feet 8 inches
Total rise or lockage (mean)	19 feet
Breadth of canal at bottom	141 feet 8 inches
Breadth of surface of water	150 feet
Minimum overhead clearance	No restrictions

This canal is constructed through St. Mary's island, on the north side of the rapids of the St. Mary river, and, with that river, gives communication between lakes Huron and Superior. It is the last canal on the St. Lawrence and Great Lakes route.

The lock on this canal is electrically operated and the canal lighted by electricity.

MONTREAL, OTTAWA, AND KINGSTON ROUTE

This route extends from the harbour of Montreal, passing through the Lachine canal to lake St. Louis and thence up the Ottawa river *via* the Ste. Anne lock and the Carillon and Grenville canals to Ottawa; thence by the Rideau canal, Rideau river and a series of small lakes and other water courses and channels to Kingston on lake Ontario, a total distance of 246·24 miles.

The total lockage between the harbour of Montreal and that of Kingston is 545 feet (385 feet rise and 160 feet fall) and the number of locks is 60.

The following table exhibits the intermediate distances from Montreal harbour:—

Sections of Navigation	Intermediate distance	Total distance from Montreal
	Miles	Miles
Lachine Canal	8·74	.....
From Lachine to Ste. Anne lock	13·50	22·24
Ste. Anne lock and piers	0·12	22·36
Ste. Anne lock to Carillon canal	27·00	49·36
Carillon canal	0·94	50·30
From Carillon canal to Grenville canal	6·25	56·55
Grenville canal	5·94	62·49
From Grenville canal to entrance of Rideau navigation	56·00	118·49
Rideau navigation ending at Kingston	126·25	244·74
" Tay branch, from Rideau lake to Perth	6·50	193·44

* A heavy gale has been known to reduce the available depth to 17 ft. 6 in. for a few hours at a time.

STE. ANNE LOCK

1840-1843—First canal built to provide 6 feet depth.
1879-1886—Canal and lock enlarged to 9 feet depth.

Length of canal	0·12 statute mile
Number of locks	1
Dimensions of locks	200 feet by 45 feet
Total rise or lockage	3 "
Depth on sills (normally)	9 "
*Overhead clearance	41 feet 5 inches (C.N.R. Bridge)

This work, with guide piers above and below, surmounts the Ste. Anne rapids between Ile Perrot and the head of the island of Montreal, at the outlet of that portion of the Ottawa river which forms the lake of Two Mountains, 23·5 miles from Montreal harbour. The lock is electrically operated and lighted.

From the Ste. Anne lock to the foot of the Carillon canal is a navigable stretch of 27 miles through the lake of Two Mountains and the Ottawa river.

CARILLON CANAL

1825-1833—First canal built to provide 6 feet depth.
1873-1882—Canal enlarged to 9 feet depth.

Length of canal	0·94 statute mile
Number of locks	2
Dimensions of locks	200 feet by 45 feet
Total rise or lockage	14 feet
Depth of water on sills	9 " †
Breadth of canal at bottom	100 "
Breadth of canal at water surface	110 "
Minimum overhead clearance	45 "

This canal overcomes the Carillon rapids.

By the construction of the Carillon dam across the Ottawa river the water at that point is raised 9 feet, enabling the river above to be used for navigation. From the head of the Carillon canal to the Grenville canal the distance is 6·25 miles.

GRENVILLE CANAL

1825-1829—First canal built to give 6 feet depth.
1871-1882—Canal enlarged to 9 feet depth.

Length of canal	5·94 statute miles
Number of locks	5
Dimensions of locks	200 feet by 45 feet
Total rise or lockage	43 feet
Depth of water on sills	9 " 6 inches†
Breadth of canal at bottom	45 to 50 feet
Breadth of canal at water surface	50 to 80 "
Minimum overhead clearance	42 feet C.N.R. Bridge)

This canal, by which the Long Sault rapids are avoided, is about 56 miles below the city of Ottawa, up to which point the river Ottawa affords unimpeded navigation.

* At extreme high water in Lake St. Louis, this clearance is reduced to 33 ft. 9 in.
† The minimum depth provided for vessels passing through both the Carillon and Grenville canals is 9 feet except during periods of very low water.

Carillon and Grenville Canals—Mileage and General Data

Mileage	Structure, Locality, etc.	Locks							
		No.	Length between hollow quoins		Minimum Width		Depth on sill		Lift
			ft.	in.	ft.	in.	ft.	in.	ft.
0·00	Lower entrance to Carillon Canal								
0·09	Lock	1	202	3	45	0	12	0*	10·50
							Variable		
0·76	Lock	2	200	9	45	0	9	6†	3·50
							Variable		
0·94	Upper entrance to Carillon Canal								
	Total lift								14·00

Between the upper entrance to the Carillon Canal and lower entrance to the Grenville Canal there is a distance of about 6¼ miles.

0·00	Lower entrance to Grenville Canal								
0·11	Lock	3	199	9	45	0	13	0‡	13·20
							Variable		
0·27	Waste weir								
0·38	Lock	4	200	3	45	0	9	6	16·70
0·53	Waste weir								
1·27	Lock	5	200	0	45	0	9	6	6·60
1·27	Swing bridge 1—Stonefield								
1·64	Waste weir								
4·20	Lock	6	200	6	45	0	9	6	4·00
4·58	C.N.R. high level bridge								
4·92	Highway high-level bridge								
5·58	Swing bridge 2—Bay street, Grenville								
5·61	Lock	7	200	3	45	0	9	6§	2·50
							Variable		
5·94	Upper entrance to Grenville Canal								
	Total lift								43·00

* The lowest depth of water recorded for this sill is 10·00, the highest 22·75
† " " " " 8·17 " 23·25
‡ " " " " 9·25 " 28·50
§ " " " " 8·58 " 24·92

RIDEAU NAVIGATION

1826-1832—Canal built for 5 feet depth as at present.
Tay Branch built 1831-1834 by private company—4 feet depth.
Tay Branch enlarged 1883-1889 by government to 5 feet depth.

The Rideau canal establishes a navigable waterway between the Ottawa river at Ottawa and the easterly end of lake Ontario at Kingston, passing over the summit which lies between the Ottawa valley and that of the St. Lawrence. The general route of the canal may thus be described.

By a series of eight locks in flight it first ascends the steep escarpment from the Ottawa river and, proceeding across the city by an artificial cutting about five miles in length, enters the Rideau river at the Hogsback locks. The course of this river is then followed to Smith's Falls, distant about sixty-one miles from Ottawa, various dams and locks overcoming the differences in level encountered along the route. From this point, *via* Poonamalie lock, entrance is made into the first of two large expanses of water known respectively as the lower and upper Rideau lakes. At the upper lake the summit level of the canal, about 275 feet above that of the Ottawa river, is reached. From this lake, communication is made with Newboro lake, another large body of water. The route then passes in succession through Clear lake, Indian lake, Opinicon lake, Sand lake, White-

fish lake and Cranberry lake. From Cranberry lake it proceeds for about five miles through a narrow channel and thence through two large expanses of drowned land to Kingston Mills, whence, by a series of four locks, it descends to the Cataraqui river. This river is then followed for a distance of six miles to the harbour of the city of Kingston about 161 feet below the summit level.

The Tay branch of the canal affords communication *via* the Tay river between Beveridge's bay, about ten miles beyond Smith's Falls on the lower Rideau lake, and the town of Perth.

From the summit level of the canal the descending reaches on both the Ottawa and St. Lawrence valley slopes are supplied also by reserve waters tributary to them. The water supply of the entire canal may be summarized as follows:—

1. The summit level, supplied by the Wolf lake system discharging into the upper Rideau lake.

2. The northeasterly descending level to Ottawa, supplied by the Tay river system discharging into the lower Rideau lake.

3. The southwesterly descending level to Kingston, supplied by the Mud or Newboro lake system discharging into Opinicon lake and further supplemented by the flow from Loughborough lake.

Length of navigation	126·25 statute miles
Number of locks from Ottawa to Kingston	33 ascending 14 descending
Total lockage, at normal navigation levels	275 feet rise 161 " fall
Dimensions of locks	134 feet by 33 feet
Depth of water on sills (normally)	5 "
Navigation depth through the several reaches	5 "
Breadth of canal reaches at bottom	60 "
Breadth of canal reaches at surface of water	80 "
Minimum overhead clearance	26 " 6 inches

Tay Branch

Length of canal	6·50 statute miles
Number of locks	2
Dimensions of locks	134 feet by 33 feet
Total rise or lockage	26 "
Depth of water on sills (normally)	5 "
Length of dam	200 "
Breadth of canal at bottom	40 " in rock 60 " in clay
Breadth of canal at surface of water	80 "

Rideau Canal—Mileage and General Data

Miles from Ottawa	Structure, locality, etc.	Overhead clearance	Locks					Canal prism, Miles
			No.	Length between hollow quoins	Minimum Width	Depth on sill	Average Lift	
	(Ottawa River—Normal navigation level 128·97 above M.S.L.)							
		ft. in.		ft. in.	ft. in.	ft. in.	feet	
0·00	Ottawa River—Ottawa		1 2 3 4 5 6 7 8 Flight locks	134 0	33 0	6 6	82·00	*
0·24	Plaza Bridge—Ottawa	26 6						
0·55	Laurier Ave. bridge—Steel arch	27 3						4·15
1·50	Can. Nat. Rys.—Swing bridge							
1·55	Bridge 1—Vert. lift—Pretoria Ave.	29 6						
2·75	Concrete arch—Bank street	27 0						
3·33	Bridge 2—Bronson Ave.—Swing							
3·65	Can. Pacific Ry.—Swing bridge							
4·15	Hartwell's Locks		9 10 Flight	134 0	33 0	5 0	22·00	1·05
5·20	Hogsback locks		11 12 Flight	134 0	33 0	5 0	13·50	
5·22	Bridge over lock 12—Swing							
5·22	Entrance to Rideau river							
7·40	Can. Nat. Ry. high-level bridge	31 0						
9·50	Black Rapids lock		13	134 0	33 0	5 0	10·00	0·13
14·75	Long Island locks		14 15 16 Flight	134 0	33 0	5 0	27·00	
14·85	Bridge 5—Swing—Across upper lock							0·13
16·55	Bridge 6—Swing—Manotick							
23·85	Bridge 7—Swing—Kars							
33·45	Bridge 8—Swing—Beckett's Ldg.							
40·50	Burritt's Rapids		17	134 0	33 0	5 0	10·50	1·50
41·00	Bridge 9—Swing							
43·60	Nicholson's locks		18	134 0	33 0	5 0	6·75	0·50
	"		19	134 0	33 0	5 0	8·33	
44·10	Bridge 10—Swing over lock 19							
44·85	Clowes lock		20	134 0	33 0	5 0	10·5	0·05
46·50	Can. Pac. Ry.—High-level bridge	40 0						
46·75	Merrickville locks		21	134 0	33 0	5 0	8·25	
	" "		22	134 0	33 0	5 0	10·0	0·50
	" "		23	134 0	33 0	5 0	6·75	
46·80—	Bridge 11—Swing over lock 23							
55·00	Kilmarnock lock		24	134 0	33 0	5 0	4·75	0·15
55·00	Bridge 13—Swing over lock							
59·50	Edmond's lock		25	134 0	33 0	5 0	10·83	
60·49	Can. Pac. Ry.—High-level bridge	30 0						0·06
60·50	Old Sly's locks		26 27 Flight	134 0	33 0	5 0	15·5	
60·55	Bridge 15—Swing over lock 27							
61·50	Smiths Falls locks		28 29 30 Flight	134 0	33 0	5 0	25·25	
	"							
	"							
61·55	Bridge 17—Beckwith street—Swing over entrance lock 30							
61·80	Bridge 19—Abbot street—Swing over canal prism							
61·80	Smiths Falls lock		31	134 0	33 0	5 0	8·5	0·17
61·85	Can. Nat. Ry.—Bascule lift							
64·25	Poonamalie lock		32	134 0	33 0	5 0	7·75	1·25
64·93	Entrance to Lower Rideau lake							

* Highest recorded water on lower sill of lock 1 = 29 ft. 6 in.
Lowest " " " " 1 = 4 ft. 7 in.

Rideau Canal—Mileage and General Data—*Concluded*

Miles from Ottawa	Structure, locality, etc.	Overhead clearance	Locks					Canal prism, Miles
			No.	Length between hollow quoins	Minimum Width	Depth on sill	Average Lift	
		ft. in.		ft. in.	ft. in.	ft. in.	ft. in.	
68·45	Diversion to Tay Branch							
70·35	Bridge 26—Swing—Rideau Ferry							
83·45	The Narrows	.....	35	134 0	33 0	5 0	4·0	0·06
83·51	Entrance to Lower Rideau lake (Summit level, 404·23 above M.S.L.)							
87·20	Can. Nat. Ry. high-level bridge	34 0						
	Bridge 29—High-level highway	27 5						
87·75	Newboro lock	.....	36	134 0	33 0	5 0	9·0	1·25
91·75	Can. Nat. Ry. high-level bridge	34 0						
92·00	Chaffey's lock	.....	37	134 0	33 0	5 0	12·0	0·13
92·00	Bridge 30—Swing over lock 37							
92·45	Davis' lock	.....	38	134 0	33 0	5 0	9·0	0·06
97·25	Jones's Falls locks	.....	39	.....	.....	.....	15·0	
	"	.....	40 (Flight)	134 0	33 0	5 0	.....	
	"	.....	41 (Flight)	134 0	33 0	5 0	45·0	
97·40	"	.....	42 (Flight)	134 0	33 0	5 0	.....	
97·27	Bridge 33—Swing over lock 40							
103·65	Bridge 36—Swing over Cranberry lake							
108·25	Upper Brewers Mills locks	.....	43 (Flight)	134 0	33 0	5 0	.....	
	" "	.....	.....	.....	.....	.....	17·42	1·75
		.....	44 (Flight)	134 0	33 0	5 0	.....	
	Bridge 37—Swing over lock 44							
110·00	Lower Brewers Mills or Washburn lock	.....	45	134 0	33 0	5 0	13·0	4·25
	Bridge 39—Swing over lock 45							
120·25	Kingston Mills locks	.....	46	134 0	33 0	5 0	.....	
	" "	.....	47 (Flight)	134 0	33 0	5 0	.....	
			.....	.....	.....	.....	45·0	0·25
	" "	.....	48 (Flight)	134 0	33 0	5 0	.....	
	" "	.....	49 (Flight)	134 0	33 0	5 0	.....	†
	Bridge 41—Swing over lock 46							
120·30	Can. Nat. Ry. high-level bridge	30 0						
126·25	Kingston—Bascule bridge—Cataraqui bridge							
	(Lake Ontario—Mean level, 246·0 above M.S.L.; Standard low water, 243·0 above M.S.L.)							17·39

† Highest recorded water on lower sill of lock 49 = 11 ft. 2 in.
Lowest " " " 49 = 5 ft. 8 in.

Rideau Canal—Tay Branch—Mileage and General Data

Mileage from Ottawa	Structure, Locality, etc.	Locks					Canal Prism
		No.	Length between hollow quoins	Minimum Width	Depth on sill	Lift	
			ft. in.	ft. in.	ft. in.	feet	Miles
69·15	Canal entrance—Beveridge bay—Rideau Lake	.....	134 0	33 0	5 0		
69·35	Lock	33	.....	.....	.....	26·0	
69·37	"	34	134 0	33 0	5 0		
69·40	Bridge 21—Swing across canal prism						
75·20	" 22—Swing—Craig street—Perth						
75·45	" 23—Swing—Beckwith street—Perth						3·50
75·55	" 24—Swing—Drummond street—Perth						
75·65	" 25—Swing—Gore street—Perth						
	(Total length Tay Branch, 6·50 miles)						

RICHELIEU RIVER TO LAKE CHAMPLAIN ROUTE

This system, commencing at Sorel, at the confluence of the rivers St. Lawrence and Richelieu, 46 miles below Montreal, extends along the river Richelieu, through the St. Ours lock to Chambly Basin; thence, by the Chambly canal, to St. Johns, and up the river Richelieu to lake Champlain. The distance from Sorel to the international boundary line is 81 miles. The minimum depth of water is normally 6 feet 6 inches.

At Whitehall, at the southerly end of lake Champlain, connection is made by means of the Champlain canal with the river Hudson, by which the city of New York is directly reached.

ST. OURS LOCK AND DAM

1844-1849—Lock built to provide 7 feet depth.
1930-1932—Lock rebuilt to 12 feet depth.

Length	0·12 statute mile
Number of locks	1
Dimensions of lock	339 feet by 45 feet
Depth of water on sills	12 feet*
Total rise or lockage	5 feet
Minimum overhead clearance	No restrictions

At St. Ours, 14 miles from Sorel, the river Richelieu is divided by a small island into two channels. The St. Ours lock is in the eastern channel. The western channel is closed by a dam 635 feet long.

There is a navigable depth in the Richelieu river of 7 feet between St. Ours lock and Chambly Basin, a distance of 32 miles.

CHAMBLY CANAL

1831-1843—Canal built to provide 6½ feet depth as at present.

Length of canal	11·78 statute miles
Number of locks	9
Dimensions of locks—†	
Lift Locks Nos. 1 to 8	Width, from 23 ft. 3 in. to 24 ft. 4 in. Length, from 126 ft. to 120 ft. 6 in.
Guard lock No. 9 at St. Johns	120 ft. 7 in. by 23 ft. 7 in.
Total rise or lockage	80 feet
Depth of water on sills (normally)	6 feet 6 inches
Breadth of canal at bottom	36 feet
Breadth of canal at surface of water	60 feet
Minimum overhead clearance	120 feet (Telephone wires)

This canal succeeds the 32 miles of navigable water between St. Ours lock and Chambly Basin. The canal overcomes the rapids between Chambly and St. Johns.

---

* Depth of water on lower sill is governed by the level of the St. Lawrence river and has been as low as 11·63 feet, (Oct., 1895).

† The lock of minimum usable length on this system is No. 2 with an inside clearance of 111 feet 5 inches.

Chambly Canal—Mileage and General Data

Mileage	Structure, Locality, etc.	Locks						Lift
		No.	Length between hollow quoins		Minimum Width		Depth on sill	
			ft.	in.	ft.	in.	ft. in.	feet
0·00	Entrance—Chambly Basin (end of guide pier)							
0·12	Centre of lock	1	125	10	23	5	7 0* Variable	15·50
0·14	"	2	125	11	23	6	6 6	9·70
0·17	"	3	126	0	23	8	6 6	9·80
0·18	Bridge No. 1—Swing							
0·72	Centre of lock	4	120	6	23	4	6 6	7·20
0·84	"	5	120	8	24	4	6 6	8·00
0·93	"	6	120	9	23	4	6 6	8·20
1·08	Bridge No. 2—Swing							
1·26	Centre of lock	7	120	9	23	4	6 6	7·40
1·51	C.N.R. bridge—Swing							
1·60	Centre of lock	8	126	0	23	3	6 6	9·00
1·61	Bridge No. 3 (Mark's)—Draw							
2·13	Bridge No. 4—Swing							
2·76	Bridge No. 5—Swing							
3·26	Bridge No. 6—Swing							
3·75	Bridge No. 7—Swing							
4·90	Bridge No. 8—Swing							
5·57	Bridge No. 9—Swing							
8·32	Bridge No. 10—Ile Ste. Thérèse—Swing							
10·21	Siphon culvert							
11·12	Bridge No. 11—Draw							
11·13	Centre of lock	9	120	7	23	7	6 6† Variable	5·20
11·23	C.P.R. bridge at St. Johns—Swing							
11·51	Bridge No. 12 (Gouin) at St. Johns—Bascule							
11·70	Entrance—Richelieu river (end of guide pier)							
11·76	C.N.R. bridge—Swing							
11·78	End of wharf							
	Total lift							80·00

* The lowest depth of water recorded for this sill is 6 ft. 8 in., the highest 25 ft. 2 in.
† The lowest depth of water recorded for this sill is 6 ft. 0 in., the highest 13 ft. 11 in.

The following table shows the distances between Sorel and New York:—

Sections of Navigation	Intermediate distance	Total distances from Sorel
	Miles	Miles
Sorel to St. Ours lock	14	14
St. Ours lock to Chambly canal	32	46
Chambly canal	12	58
Chambly canal to international boundary line	23	81
International boundary line to Champlain canal	111	192
Champlain canal to junction with Erie canal	66	258
Erie canal from junction to Albany	7	265
Albany to New York City	146	441

MURRAY CANAL

1882-1889—Canal built to provide 11 feet depth as at present.

Length between eastern and western piers	5·15 statute miles
Breadth at bottom	80 feet
Breadth at water surface, low water, lake Ontario	124 feet
Depth at elevation 244 of lake Ontario	11 feet
Number of locks	None
Minimum overhead clearance	125 feet (Transmission line)

This canal extends through the isthmus of Murray, giving connection westward between the bay of Quinte and Presqu'ile bay thus enabling vessels to avoid open lake navigation between Kingston and Presqu'ile light on the north shore of lake Ontario.

The canal, including the dredged entrance channels, is on a straight line from the bay of Quinte for 6·80 miles to an angle in Presqu'ile bay. The overall length of canal and entrance channels is 7·53 miles.

Three swing bridges cross the canal, two carry highway traffic and one carries railway traffic.

TRENT CANAL

1833-1844—Various sections, non-connected, built for 4¾ feet depth.
1869-1887—Various sections built for 6 feet depth.
1895-1907—Peterborough-Lakefield and Balsam Lake-Lake Simcoe divisions constructed for 6 feet depth.
1906-1918—Various divisions built and other divisions reconstructed to 8 feet 4 inches depth.

The term "Trent Canal" is applied to a series of navigable rivers and lakes connected by short canals forming a continuous system with a minimum of 5 feet 10 inches navigation for 224 miles from the bay of Quinte, lake Ontario, to Swift Rapids on the Severn river, and from the the latter point, for vessels of smaller sizes which can be passed over the Marine Railways, for a further distance of 16 miles to the outlet into Georgian bay at Port Severn. Of the 240-mile route only 33¼ miles are artificial canal prism.

The total rise, or lockage from lake Ontario to the summit level, Balsam lake, is 595 feet, which is overcome by thirty-five locks. From Balsam lake to Georgian bay there is a fall of 260 feet, overcome by eight locks and two Marine Railways. On the Scugog branch there is one lock having a lift of 7 feet.

Leaving lake Ontario at Trenton on the bay of Quinte, the route of the canal follows the course of the Trent river to Rice lake. Passing through Rice lake the route then follows the Otonabee river, past Peterborough, to Lakefield where it enters the Kawartha chain of lakes. Thence it passes in succession through Katchawano, Clear, Stony and Lovesick lakes, Deer bay, and Buckhorn, Pigeon, Sturgeon, and Cameron lakes to Balsam lake, the summit level. From Balsam lake an artificial rock cutting two miles in length gives connection with the raised waters of the Grass river and Mitchell lake. Another rock cutting 3½ miles in length carries navigation into the raised waters of the Talbot river. The Talbot river is canalized for a distance of 8 miles, from which point a canal carries navigation for 3½ miles to lake Simcoe. Passing through lakes Simcoe and Couchiching the route then follows the Severn river, including Sparrow lake, to Gloucester Pool and Little Lake, terminating at Port Severn where a small lock gives outlet into Georgian bay.

The Scugog branch embraces 8 miles of river navigation to Lindsay, where a dam and lock of 7 feet lift give navigation through 10 miles of river to lake Scugog.

Water supply to maintain the summit level, the Kawartha lakes, and stream flow in the Otonabee and Trent rivers for power development, is obtained from a reservoir system embracing sixty-one lakes to the north of the Kawartha chain of lakes.

The size of vessel which can be accommodated on the various sections of the canal may be approximated by the information given in the following tables.

The maximum size of vessel which can be accommodated from Trenton to Swift Rapids, Severn river, is limited by the dimensions of the old lock at Buckhorn to one of 6 feet draft, 127 feet in length, if beam does not exceed 21 feet. Square-built scows of 32½ feet beam, or less, can be accommodated to a length of 110 feet only.

The maximum size of vessel which can be accommodated from lake Ontario to Peterborough is one of 8 feet draft, 162 feet in length, if beam does not exceed 21 feet. Square built scows of 32½ feet beam, or less, can be accommodated to a length of 145 feet.

The maximum size of vessel which can be accommodated from Peterborough to Swift Rapids, Severn river, is limited by the dimensions of the old lock at Buckhorn to one of 6 feet draft, 127 feet in length, if beam does not exceed 21 feet. Square-built scows of 32½ feet beam, or less, can be accommodated to a length of 110 feet only.

The largest motorboat which can be passed over the Marine Railways at Swift Rapids and Big Chute, Severn river, is one of 60 feet in length, 13½ feet beam, 4 feet draft and weighing not more than 20 tons.

The maximum size of vessel which can be accommodated in the small lock at Port Severn is one of 6 feet draft, 85 feet in length, if beam does not exceed 24 feet. Square built scows of 24½ feet beam, or less, can be accommodated to a length of 75 feet only.

The maximum size of vessel which can be accommodated on the Scugog branch is one of 130 feet in length, if beam does not exceed 21 feet. Square-built scows of 32½ feet beam, or less, can be accommodated to a length of 110 feet. The available draft Sturgeon lake to Lindsay is 6 feet; Lindsay to Port Perry, about 4½ feet. Overhead clearance is limited to 10 feet by arch bridge south of Lindsay.

Length of Navigation:—

	ft.	in.			
Trenton to Rice Lake	8	4	navigation	57·00	miles
Rice Lake and to Peterborough	8	0	"	32·51	"
Peterborough to Swift Rapids	6	0	"	134·94	" *
Swift Rapids to Big Chute	4	0	"	8·00	"
Little Chute to Port Severn	6	0	"	8·10	"
				240·55	"
Scugog branch. Above Lindsay	4	6	"	35·00	"
Buckhorn lake to Chemong Park	6	0	"	9·00	"
Pigeon lake to Omemee	4	0	"	14·00	"
Total				298·55	"

Number of Locks:—

From Trenton to Balsam lake—Ascending	35	
(One of the above is an Hydraulic Lift Lock)		
From Balsam lake to Port Severn—Descending	8	
(One of the above is an Hydraulic Lift Lock)		
Scugog branch—Ascending	1	
	—	44
Number of Marine Railways (Severn river)		2

Total Lockage:—

Ascending	602 feet
Descending	260 "
	862 "

Dimensions of Locks and Depths on Sills.
(See Table of Mileage and General Data, page 28).

Depths of Canal Reaches:—

	ft.	in.	
Trenton to Rice Lake	9	0	With exceptions as noted below.*
Rice Lake and to Peterborough	8	0	
Peterborough to Swift Rapids	6	0	
Swift Rapids to Port Severn	6	0	
Scugog Branch—Sturgeon lake to Lindsay	6	0	
Lindsay to Port Perry	4	6	
Pigeon River Branch	4	0	

Capacity of Marine Railways at Swift Rapids and Big Chute:—
Vessels not exceeding..60 feet long
13 feet 6 inches beam
4 feet draft
20 tons in weight

Minimum breadth of canal cuttings at bottom, 50 feet.

Charts are obtainable from the Superintending Engineer, Trent canal Peterborough, Ont., as follows:—

COST OF CHARTS

Twenty-four charts, Trenton to Georgian bay, and index sheet	$0.45 each
Trenton to Nassau—11 charts and index sheet	5.00 per set
Nassau to Balsam lake—9 charts	4.00 "
Balsam lake to Georgian bay—3 charts	1.35 "
Stony Lake—1 chart	0.45
Complete set	$10.80

To cover postage and registration, 12 cents should be added for individual charts, 20 cents for each of the first two sets, 13 cents for the third set and 35 cents for complete set.

*Mile 165 (just east of Victoria Road Highway Swing Bridge), 5 feet 8 inches. Bottom, very soft peat. A vessel of 6 feet draft may proceed slowly.
Mile 170 to 171 (just west of Kirkfield Hydraulic Lift Lock), 5 feet 10 inches. Bottom limestone.

Trent Canal—Mileage and General Data

Miles from Trenton	Structure, Locality, etc.	Overhead clearance	Locks					Canal prism
			No.	Length between hollow quoins	Minimum Width	Depth on sill	Average Lift	
		ft. in.		ft. in.	ft. in.	ft. in.	ft. in.	Miles
	(Lake Ontario—Mean level, 246·0 above M.S.L.; Standard low water, 243·0 above M.S.L.)							
0·00	Entrance to Bay of Quinte							
0·00	Bridge 1—Trenton—Highway swing							
0·36	Bridge 2—Can. Nat. Rys.—Swing							
0·86	Bridge 3—Can. Pac. Ry.—High-level	43 4						0·75
1·74	Bridge 4—Can. Nat. Rys.—High-level	30 6						
1·78	Trenton—Lock	.....	1	175 0	33 0	8 4	17 7	
2·41	Trenton— "	.....	2	175 0	33 0	8 4	20 0	
3·67	Bridge 5—Glen Miller—Highway swing							
3·85	Glen Miller—Lock	.....	3	175 0	33 0	8 4	27 0	1·00
5·15	Township of Sidney—Lock	.....	4	175 0	33 0	8 4	18 0	
6·38	" " "	.....	5	175 0	33 0	8 4	18 0	0·25
7·26	Frankford—Lock	.....	6	175 0	33 0	8 4	16 0	
7·56	Bridge 6—Frankford—Highway swing							1·75
8·01	Emergency dam							
13·82	Glen Ross—Lock	.....	7	175 0	33 0	8 4	10 0	0·50
13·85	Emergency dam							
13·86	Bridge 7—Glen Ross—Highway swing							
13·96	Bridge 8—Can. Nat. Rys.—Swing							
25·26	Township of Seymour—Lock	.....	8	175 0	33 0	8 4	19 7	1·25
26·41	" " "	.....	9	175 0	33 0	8 4	16 0	
27·99	" " "	.....	10	175 0	33 0	8 4	24 0	0·75
29·68	" " "	.....	11 (Flight)	175 0	33 0	8 4	48 0	
			12 (Flight)	175 0	33 0	8 4		
29·74	Emergency dam							
29·75	Bridge 11—Highway swing							
30·69	Bridge 12—Can. Nat. Rys.—Bascule							1·00
30·77	Bridge 13—Can. Nat. Rys.—High-level	28 8						
31·13	Bridge 14—Campbellford—Highway bascule							
32·17	Township of Seymour—Lock	.....	13	175 0	33 0	8 4	23 0	0·50
33·70	" " "	.....	14	175 0	33 0	8 4	25 0	
33·72	Emergency dam							
36·16	Heeley Falls—Lock	.....	15	175 0	33 0	8 4	21 9½	
36·18	Bridge 15—Highway swing							
36·51	Heeley Falls—Lock	.....	16 (Flight)	175 0	33 0	8 4		1·00
	" "	.....	17 (Flight)	175 0	33 0	8 4	54 0	
35·56	Emergency dam							
37·11	Bridge 16—Highway swing							
43·38	Bridge 17—Highway swing							
51·13	Hastings—Lock	.....	18	175 0	33 0	8 4	9 0	
51·16	Bridge 18—Highway swing							
51·17	Emergency dam							
51·95	Bridge 19—Can. Nat. Rys.—Swing							
57·00	Entrance to Rice lake							
69·00	Mouth of Otonabee river							
76·53	Bridge 20—Bensfort—Highway swing							
80·35	Bridge 21—Hale's—Highway swing							
88·74	Peterborough—Lock	.....	19	134 0	33 0	7 8	8 0	
88·83	Bridge 22—Highway swing							
88·94	Bridge 23—Can. Nat. Rys.—Swing							
89·51	Peterborough—Lock	.....	20	142 0	33 0	6 0	12 0	
89·61	Bridge 24—Maria St.—Swing							
89·72	Bridge 25—Can. Pac. Ry.—Swing							
90·10	Peterborough—Hydraulic lift lock	.....	21	140 0	33 0	6 0	65 0	
90·58	Bridge 26—Norwood road—High-level	23 8						
90·58	Guard gate							
91·01	Bridge 27—Warsaw road—Highway swing							3·50

Trent Canal—Mileage and General Data—*Continued*

Miles from Trenton	Structure, Locality, etc.	Overhead clearance	Locks					Canal prism
			No.	Length between hollow quoins	Minimum Width	Depth on sill	Average Lift	
		ft. in.		ft. in.	ft. in.	ft. in.	ft. in.	Miles
91·01	Guard gate							
93·25	Guard gate—Nassau							
93·33	Bridge 28—Can. Nat. Rys.—Swing							
93·38	Bridge 29—Nassau—Highway swing							
94·25	Township of Douro—Lock	.....	22	142 0	33 0	6 0	14 0	0·25
94·84	" " "	.....	23	142 0	33 0	6 0	12 0	
96·38	" " "	.....	24	142 0	33 0	6 0	12 0	0·25
97·29	" " "	.....	25	142 0	33 0	6 0	10 0	
98·72	Lakefield—Lock	.....	26	142 0	33 0	6 0	15 8	
99·00	Bridge 30—Lakefield—High-level	23 6						
99·04	Guard Gate—Lakefield							0·50
104·45	Bridge 31—Young's Point—Highway swing							
104·47	Young's Point lock	.....	27	175 0	33 0	8 10	7 3	
104·49	Guard Gate—Young's Point							
112·87	Burleigh Falls—Lock	.....	28 (Flight)	150 0	33 0	6 0	24 0	
	" "	.....	29 (Flight)	134 0	33 0	6 0		
113·00	Bridge 32—Burleigh Falls—Highway swing							
114·75	Lovesick—Lock	.....	30	134 0	33 0	6 0	3 6	
120·66	Buckhorn—Lock	.....	31	134 0	33 0	6 0	11 6	
120·66	Bridge 33—Buckhorn—Highway swing							0·25
132·68	Bridge 61—Chemong lake—Floating bridge with steel swing span				Branch (Chemong Lake)			
130·17	Bridge 34—Gannon's Narrows—Floating bridge with floating span				Branch (Pigeon Lake to Omemee)			
138·17	Bridge 35—Bobcaygeon—Swing							
138·21	Bobcaygeon—Lock	.....	32	175 0	33 0	8 4	5 5	0·25
138·23	Guard gate							
148·0	Sturgeon Point							
154·57	Bridge 64—Can. Pac. Ry.—High-level. Lindsay river	37 0						
156·19	Bridge 65—Wellington street, Lindsay—Highway bascule							
156·31	Bridge 66—Lindsay street—Swing				Branch (Sturgeon Lake to Port Perry)			
156·35	Lindsay—Lock	.....	.....	142 0	33 0	6 0	7 0	
157·20	Bridge 67—Can. Nat. Rys.—High-level	31 0						
157·87	Bridge 68—Ops—Highway fixed span	10 0						
183·00	Port Perry							
153·61	Fenelon Falls—Locks	.....	33 (Flight)	150 0	33 0	6 0	23 7	0·50
	" "	.....	34 (Flight)	134 0	33 0	6 0		
153·61	Bridge 36—Highway swing							
153·98	Bridge 37—Can. Nat. Rys.—Swing							
157·17	Rosedale Lock	.....	35	175 0	33 0	8 4	4 0	1·00
157·19	Emergency dam							
158·00	Bridge 38—Rosedale—Highway swing							
158·10	Entrance to Balsam lake							
	(Balsam lake—Summit level, 841·0 above M.S.L.)							
163·91	Guard gate—Balsam lake							
165·24	Bridge 39—Victoria road—Highway swing							
166·80	Bridge 40—Portage road—High-level	23 7						
167·88	Guard gate							6·0
167·98	Bridge 41—Can. Nat. Rys.—High-level	23 4						
169·26	Guard gate—Kirkfield							
169·36	Kirkfield—Hydraulic lift-lock	24 10	36	140 0	33 0	6 0	49 0	
172·98	Bridge 42—High-level arch	28 1						
175·23	Bridge 43—Balsover—Highway swing							
176·65	Bridge 44—Boundary road—Highway swing							

Trent Canal—Mileage and General Data—*Concluded*

Miles from Trenton	Structure, Locality, etc.	Overhead clearance	Locks					Canal prism
			No.	Length between hollow quoins	Minimum Width	Depth on sill	Average Lift	
		ft. in.		ft. in.	ft. in.	ft. in.	ft. in.	Miles
177·04	Township of Thorah—Lock	.....	37	142 0	33 0	6 0	21 8½	6·0
178·05	Township of Mara—Lock	.....	38	142 0	33 0	6 0	14 0	
178·75	Bridge 45—Can. Pac. Ry.—Talbot—Swing							
179·07	Bridge 46—Kane's—Highway swing							
179·63	Township of Thorah—Lock	.....	39	142 0	33 0	6 0	13 0	
180·09	" " "	.....	40	142 0	33 0	6 0	14 0	3·0
180·74	" " "	.....	41	142 0	33 0	6 0	11 6	
180·79	Bridge 47—Gamebridge—Highway swing							
181·70	Bridge 48—Can. Nat. Rys.—High-level	22 8						
181·85	Bridge 49—Can. Nat. Rys.—Swing							
182·15	Bridge 50—Lakeshore road—Highway swing							
182·20	Entrance to Lake Simcoe							
	(Lake Simcoe level—718·3 above M.S.L.)							
197·56	Bridge 51—Atherley road—Highway swing							
197·66	Bridge 52—Can. Nat. Rys.—Atherley Narrows—Swing							
197·86	Bridge 53—Can. Pac. Ry.—Atherley—Narrows—Swing							
208·24	Bridge 54—Muskoka road—Highway swing							
209·14	Bridge 55—Can. Nat. Rys.—Washago—Swing							
209·87	Guard Gate—Couchiching							
209·89	Couchiching—Lock	.....	42	175 0	33 0	8 4	20 3	3·0
209·90	Bridge 56—Couchiching—Highway high-level	31 0						
212·73	Bridge 57—Hamlet—Highway swing							
222·40	Bridge 58—Can. Nat. Rys.—Ragged Rapids—High-level	32 0						
224·45	Swift Rapids Marine Railway	.....	.....	(60 0	13 6	4 0)	47 0	
228·07	Bridge 59—Can. Pac. Ry.—Severn Falls—High-level	33 7						
232·45	Big Chute—Marine railway	.....	.....	(60 0	13 6	4 0)	58 0	
240·55	Port Severn—Lock	.....	.....	100 0	25 0	6 0	12 0	
240·55	Bridge 60—Port Severn—Highway swing							
240·56	Entrance to Georgian Bay							
	(Lake Huron—Mean level, 581·0 above M.S.L.)							
	Total							33·25

ST. PETERS CANAL, CAPE BRETON, N.S.

1854-1869—First canal and lock built to provide 13 feet depth.

1875-1881—Enlarged to provide 18 feet depth.

1912-1917—Lock enlarged from 200 feet by 48 feet to 300 feet by 48 feet.

Length of canal	About 2,640 feet (0·50 statute mile)
Breadth at water line	55 feet.
Lock	1 tidal lock, 4 pairs of gates.
Dimensions	300 feet by 48 feet.
Depth of water on sills	18 feet at lowest water
Depth through canal	17 feet.
Extreme rise and fall of tide in St. Peter bay	7 feet.
Minimum overhead clearance	No restrictions.

This canal, which crosses an isthmus about a mile in width, connects St. Peter bay on the southerly side of Cape Breton island, Nova Scotia, with the Bras d'Or lakes from the northerly end of which access is had to the Atlantic ocean.

BEAUHARNOIS CANAL

This canal, which was replaced by the Soulanges canal in 1899, is no longer in use for navigation purposes.

WELLAND CANAL

This canal, as already noted, has been succeeded as a through route by the Welland Ship Canal.

There remains in operation however one lock—No. 1 at Port Dalhousie—which permits of the passage of boats from lake Ontario to the pond above where are situated a dry dock and the "Henley Regatta Course."

The dimensions of lock No. 1 are 270 feet by 34 feet with 14 feet of water on the mitre sill. Its lift is about 14 feet.

Port Dalhousie harbour with entrance piers and harbour facilities is maintained, as hitherto, for 14 foot navigation.

CANALS OF CANADA

Name	Location	Length in Miles	Number of Locks	Locks — Minimum dimensions: Length between hollow quoins	Locks — Minimum dimensions: Minimum Width	Locks — Minimum dimensions: Normal depth over sills
St. Lawrence and Great Lakes				Feet	Feet	Feet
Lachine	Montreal to Lachine	8·74	5	270	45	14
Soulanges	Cascades Point to Coteau Landing	14·67	5	280	46	15
Cornwall	Cornwall to Dickinson's Landing	11·00	6	270	43·67	14
Farran's Point	Farran's Point Rapids	1·28	1	800	50	16
Rapide Plat	Rapide Plat, Morrisburg	3·89	2	270	45	14
Galops	Iroquois to Cardinal	7·36	3	270	45	14
Welland Ship	Port Weller, Lake Ontario, to Port Colborne, Lake Erie	27·60	8	859	80	30*
Sault Ste. Marie	St. Mary's Rapids, Sault Ste. Marie	1·38	1	900	60	18·25
Ottawa and Rideau Rivers						
St. Anne's Lock	Junction of St. Lawrence and Ottawa rivers	0·12	1	200	45	9
Carillon	Carillon rapids, Ottawa river	0·94	2	200	45	9
Grenville	Long Sault rapids, Ottawa river	5·94	5	200	45	9·5
Rideau	Ottawa to Kingston	126·25	47	134	33	5
	Rideau Lake to Perth (Tay Branch)	6·50	2	134	33	5
Richelieu River						
St. Ours Lock	St. Ours, Que	0·12	1	339	45	12†
Chambly	Chambly to St. Johns, Que	11·78	9	120·5	23·25	6·5
Lake Ontario to Georgian Bay						
Murray	Isthmus of Murray, Bay of Quinte	5·15	None	.....	.....	(11)‡
Trent	Trenton to Peterborough lock, Peterborough	88·74	18	175	33	8·33
	Peterborough lock to Swift Rapids	135·71	24	134	33	6
	Swift Rapids to Port Severn	16·00	Marine Railways (See page 26)			(4)
	Port Severn lock	.....	1	100	25	6
	Sturgeon lake to Lindsay (Scugog Branch)	8·35	1	142	33	6
	Lindsay to Port Perry (Scugog Branch)	26·65	None	.....	.....	(4·5)
Miscellaneous						
St. Peters	St. Peter Bay to Bras d'Or Lakes, Cape Breton, N.S.	0·50	1	300	48	18§
	Total	508·67				

* The depth of canal prism between locks is 25 feet.
† See footnote, page 23.
‡ With lake Ontario at Elev. 244.
§ The depth of canal prism is 17 feet.

Table Showing the Dates of the Opening and Closing of the Canals

For the Seasons of 1930, 1931, 1932 and 1933

Canals	1930		1931		1932		1933	
	Opened	Closed	Opened	Closed	Opened	Closed	Opened	Closed
Lachine	April 23	Dec. 12	April 23	Dec. 12	April 27	Dec. 10	April 19	Dec. 5
Soulanges	" 22	" 11	" 23	" 12	" 25	" 10	" 19	" 3
Cornwall	" 23	" 11	" 21	" 12	" 23	" 12	" 18	" 4
Williamsburg—								
Farran's Point	" 23	" 11	" 21	" 12	" 23	" 12	" 17	" 4
Rapide Plat	" 23	" 11	" 21	" 13	" 23	" 12	" 17	" 4
Galops	" 23	" 11	" 21	" 14	" 23	" 12	" 17	" 4
Welland Ship	" 21	" 15	" 20	" 17	" 11	" 16	" 15	" 12
Sault Ste. Marie	" 23	" 12	" 13	" 15	" 17	" 15	" 20	" 1
Ste. Anne	" 25	Nov. 30	" 23	Nov. 30	" 27	Nov. 30	" 25	Nov. 30
Carillon and Grenville	May 1	" 30	" 27	" 30	" 27	" 30	" 27	" 30
Rideau—								
Locks 1 to 8 (Ottawa)	" 1	Dec. 1	" 27	" 30	" 28	" 30	May 1	" 30
Pretoria Ave. and Bronson Ave bridges and locks 9 to 13 (inclusive)								Oct. 15
Locks 14 to 31 (inclusive)								Sept. 30
Lock 32								Oct. 31
Locks 33 and 34 and Perth bridges								Sept. 30
Rideau Ferry bridge								Oct. 31
Locks 35 to 38 (inclusive)								" 15
Locks 39 to 49 (inclusive) and Brass' Point bridge								Sept. 30
Kingston Mills	May 1	Dec. 1	May 1	Nov. 25	May 1	Nov. 26	May 1	" 30
Trent—								
Ontario-Rice Lake Division, Lower Section	" 13	Nov. 15	" 15	Oct. 24	" 13	Oct. 27	" 4	" 15
Upper Section	" 12	" 15	" 8	Nov. 11	" 12	Nov. 9	" 8	" 15
Hastings to Rice Lake	" 14	" 15	" 7	" 14	" 11	" 1	" 2	Nov. 4
Rice Lake to Peterborough	April 26	" 22	" 3	" 19	" 27	" 5	" 9	" 2
Peterborough to Lakefield	May 5	" 6	May 12	" 7	" 3	" 8	" 5	" 1
Peterborough Lift Lock	" 8	" 6	" 12	" 7	" 6	" 8	" 5	Oct. 30
Lakefield to Bobcaygeon	" 12	" 15	" 1	" 6	" 2	" 10	" 4	Nov. 2
Bobcaygeon to Balsam Lake	" 15	" 15	April 21	" 6	" 11	" 1	" 9	Oct. 2
Kirkfield Lift Lock	" 13	Oct. 25	May 9	Oct. 24	" 11	Oct. 25	" 6	Sept. 27
Kirkfield to Lake Simcoe	" 8	" 25	" 9	Nov. 7	" 11	Nov. 18	" 5	" 15
Scugog River to Lindsay Lock	" 14	Nov. 14	" 22	Dec. 5	" 4	" 12	April 15	Oct. 30
Lake Simcoe to Georgian Bay			" 12	" 5	April 30	" 29	May 2	Nov. 13
Murray	April 21	Dec. 4	April 27	" 19	" 13	Dec. 10	April 25	" 30
St. Ours	May 1	Nov. 30	" 23	" 1	May 1	Nov. 30	May 1	" 30
Chambly	" 1	" 30	" 23	" 1	" 2	" 30	" 1	" 30
St. Peters	April 14 1930	Jan. 10 1931	" 8 1931	Jan. 11 1932	April 18 1932	Jan. 14 1933	April 22 1933	Jan. 1 1934

TABLE OF DISTANCES

ON THROUGH ROUTE

MONTREAL TO FORT WILLIAM

(Statute Miles)

—	Fort William	Sault Ste. Marie	Sarnia	Windsor	Port Colborne	Welland	St. Catharines	Port Weller	Toronto	Kingston	Brockville	Prescott	Head of Galops Canal	Cardinal	Iroquois	Morrisburg	Cornwall	Coteau Landing	Cascades Point	Lachine
Montreal*	1215	943	674	612	367	359	346	342	338	182	132	120	112	110	105	97	70	39	25	9
Lachine	1206	934	665	603	358	350	337	333	329	173	123	111	103	101	96	88	61	30	16	
Cascades Point	1190	918	649	587	342	334	321	317	313	157	107	95	87	85	80	72	45	14		
Coteau Landing	1176	904	635	573	328	320	307	303	299	143	93	81	73	71	66	58	31			
Cornwall	1145	873	604	542	297	289	276	272	268	112	62	50	42	40	35	27				
Morrisburg	1118	846	577	515	270	262	249	245	241	85	35	23	15	13	8					
Iroquois	1110	838	569	507	262	254	241	237	233	77	27	15	7	5						
Cardinal	1105	833	564	502	257	249	236	232	228	72	22	10	2							
Head of Galops Canal	1103	831	562	500	255	247	234	230	226	70	20	8								
Prescott	1095	823	554	492	247	239	226	222	218	62	12									
Brockville	1083	811	542	480	235	227	214	210	206	50										
Kingston	1033	761	492	430	185	177	164	160	156											
Toronto	899	627	358	296	51	43	30	26												
Port Weller†	873	601	332	270	25	17	4													
St. Catharines	869	597	328	266	21	13														
Welland	856	584	315	253	8															
Port Colborne	848	576	307	245																
Windsor	603	331	62																	
Sarnia	541	269																		
Sault Ste. Marie	272																			

* Lower entrance Lachine Canal.
† Foot of lock No. 1.

DEPARTMENT OF RAILWAYS AND CANALS

PLANS AND SECTIONS SHOWING

DIMENSIONS OF THE SMALLEST LOCK ON EACH OF THE CANADIAN CANAL SYSTEMS

(EXCLUDING SUPERSEDED LOCKS)

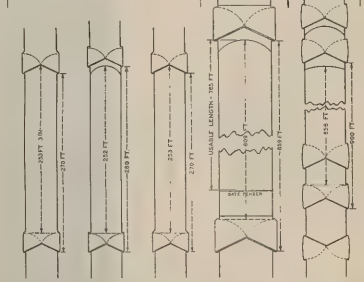
PRIMARY CANALS

ST LAWRENCE RIVER AND GREAT LAKES

MONTREAL TO PRESCOTT
14 FT ON 5 SILLS

PORT WELLER TO PORT COLBORNE
30 FT ON SILLS

LAKE HURON TO LAKE SUPERIOR
18 FT 3IN ON SILLS



SECONDARY CANALS

RICHELIEU RIVER — SOREL TO CHAMBLY BASIN, 12 FT, ON SILLS

CHAMBLY BASIN TO LAKE CHAMPLAIN, 8 FT 6IN ON SILLS

OTTAWA RIVER — LAKE ST LOUIS TO OTTAWA, 5 FT, ON SILLS

RIDEAU RIVER — OTTAWA TO KINGSTON AND PERTH, 5 FT ON SILLS

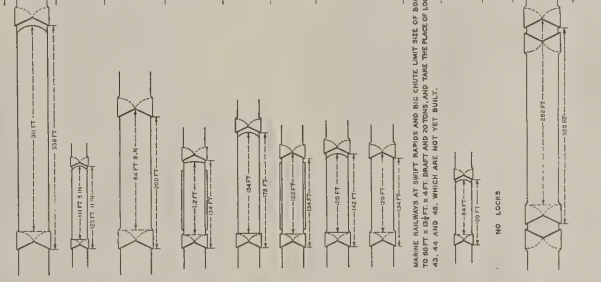
TRENT NAVIGATION — TRENTON TO PETERBOROUGH, 8 FT 6IN ON SILLS

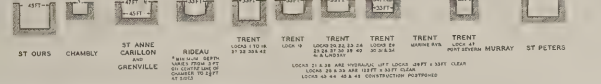
PETERBOROUGH TO SWIFT RAPIDS, 6 FT ON SILLS

SWIFT RAPIDS TO GEORGIAN BAY, 4 FT 6 IN DRAFT

ISTHMUS OF MURRAY, DEPTH 11 FT

ST. PETERS BAY TO GRAND LAKE, 16 FT ON SILLS





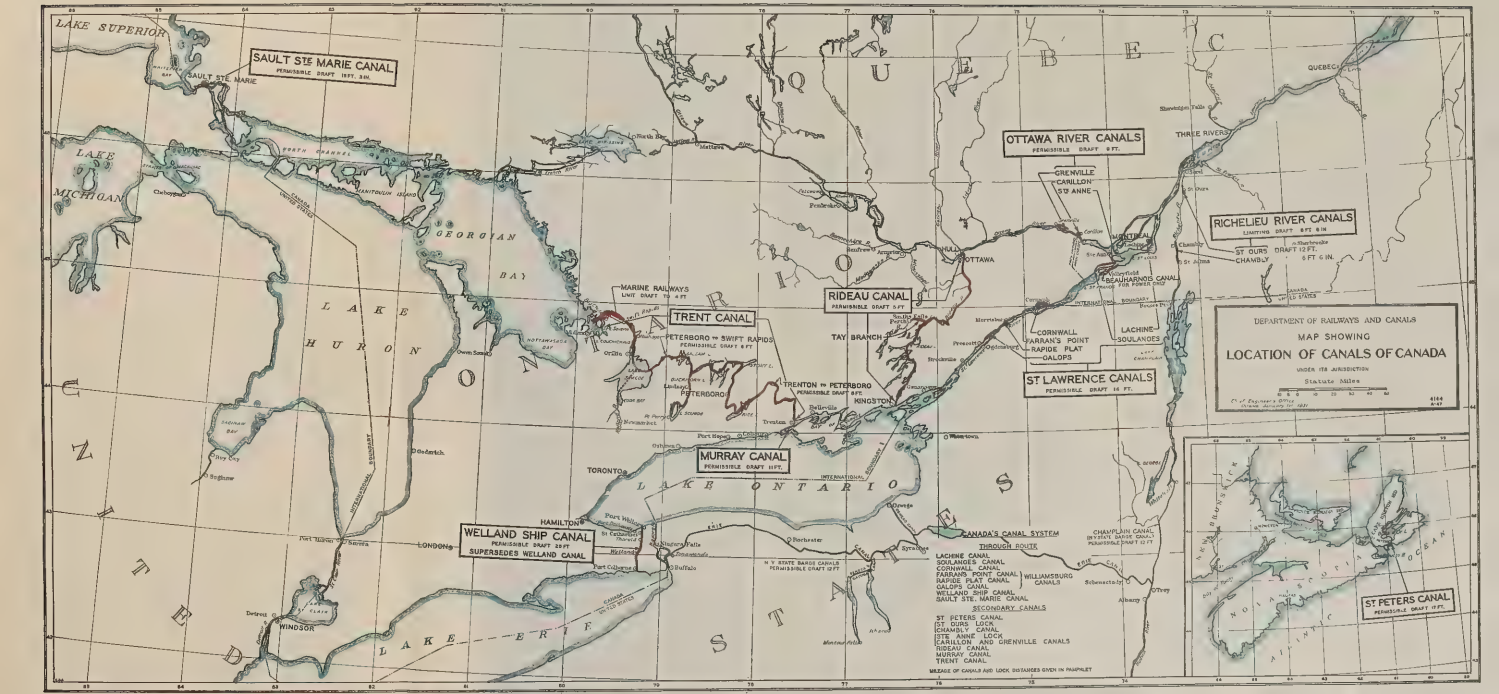
SLIGHT SHIFTING OF MASONRY IN SOME LOCK WALLS HAS SOMEWHAT NARROWED THE CLEAR WIDTH OF LOCKS IN CERTAIN SPOTS. LOCK 17 ON THE CORNWALL CANAL IS THE MOST NOTABLE IN THIS RESPECT AND IS THE LIMITING LOCK OF THE ST. LAWRENCE SYSTEM.

DETAILED INFORMATION RESPECTING OVERHEAD CLEARANCES AND AVAILABLE WIDTHS AND DEPTHS OF CANAL CHANNELS WILL BE FOUND IN THE TEXT.

TO BE ATTACHED TO "CANALS OF CANADA" PAMPHLET.

C65

4360


SAULT STE MARIE CANAL
PERMISSIBLE DRAFT 19FT. 3IN.
OTTAWA RIVER CANALS
PERMISSIBLE DRAFT 9 FT.
GRENVILLE
CARILLON
STE ANNE
RICHELIEU RIVER CANALS
LIMITING DRAFT 8FT 6IN
ST OURS DRAFT 10 FT.
6 FT 6 IN.
CHAMBLY
BEAUHARNOIS CANAL
MARINE RAILWAYS
LIMIT DRAFT TO 4 FT
TRENT CANAL
PETERBORO to SWIFT RAPIDS
PERMISSIBLE DRAFT 6 FT
TRENTON to PETERBORO
PERMISSIBLE DRAFT 8FT.
RIDEAU CANAL
PERMISSIBLE DRAFT 5 FT.
CORNWALL
AVARAN'S POINT
RAPIDE PLAT
GALOPS
LACHINE
SOULANGES
ST LAWRENCE CANALS
PERMISSIBLE DRAFT 14 FT.
MURRAY CANAL
PERMISSIBLE DRAFT 11FT.
WELLAND SHIP CANAL
PERMISSIBLE DRAFT 14FT
SUPERSEDES WELLAND CANAL
CANADA'S CANAL SYSTEM
THROUGH ROUTE
LACHINE CANAL
SOULANGES CANAL
CORNWALL CANAL
FARRANS POINT CANAL
RAPIDE PLAT CANAL
GALOPS CANAL
WELLAND SHIP CANAL
SAULT STE. MARIE CANAL
SECONDARY CANALS
ST PETERS CANAL
ST OURS CANAL
CHAMBLY CANAL
STE ANNE LOCK
CARILLON AND GRENVILLE CANALS
RIDEAU CANAL
MURRAY CANAL
TRENT CANAL
MILEAGE OF CANALS AND LOCK DISTANCES GIVEN IN PAMPHLET
CHAMPLAIN CANAL
HUDSON RIVER BARGE CANAL
PERMISSIBLE DRAFT 12 FT
N Y STATE BARGE CANALS
PERMISSIBLE DRAFT 12FT
WILLIAMSBURG CANALS
ST PETERS CANAL
PERMISSIBLE DRAFT 11FT.
DEPARTMENT OF RAILWAYS AND CANALS
MAP SHOWING
LOCATION OF CANALS OF CANADA
UNDER ITS JURISDICTION
Statute Miles
4164
6-47
LAKE SUPERIOR
LAKE MICHIGAN
GEORGIAN BAY
LAKE HURON
LAKE ERIE
LAKE ONTARIO
ONTARIO
QUEBEC
THREE RIVERS
OTTAWA
TORONTO
HAMILTON
LONDON
WINDSOR
SARNIA
KINGSTON
PETERBORO
BUFFALO
ROCHESTER
SYRACUSE
ALBANY
MONTREAL
QUEBEC
NEW BRUNSWICK
NOVA SCOTIA
PRINCE EDWARD ISLAND
ATLANTIC OCEAN